

Making Salts

1) A student wanted to make the neutral salt, sodium nitrate.

a) Explain how to make sodium nitrate by mixing sodium carbonate and nitric acid solutions using school laboratory equipment (your explanation may use notes and diagrams).

b) Explain how litmus paper could be used during the process described to show the salt being produced is **neutral**.

c) Write a word equation AND a balanced symbol equation for the reaction between sodium carbonate and nitric acid.

2) A student wanted to make the salt, magnesium chloride. Discuss how the student would make magnesium chloride salt from hydrochloric acid and magnesium oxide. In your answer you should:

- state what type of reaction occurs
- write a word equation AND a balanced symbol equation for the reaction between hydrochloric acid and magnesium oxide
- explain how you would make magnesium chloride in a school lab from hydrochloric acid and solid magnesium oxide (include labelled diagrams).

3) A student reacted zinc oxide with sulfuric acid, and wrote the following **incorrect** equation to represent the reaction:



The equation contains THREE errors.

a) Rewrite the equation so that it is a **correctly** balanced chemical equation.

b) Discuss the reasons for the three changes made to correctly balance the chemical equation.

4) a) Copper sulfate is a salt. Copper sulfate crystals can be prepared in the laboratory by adding copper oxide to an acid. Name the acid that would be used to make copper sulfate crystals and explain your choice

b) Write a word equation for the reaction of copper oxide and the acid.

c) Hydrochloric acid is added to a sodium carbonate solution. Describe the observation(s) that would be made when this reaction occurs, and explain the reason for them.

d) Write a balanced chemical equation for the reaction between hydrochloric acid and sodium carbonate solution.